IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT(s):	Homfeister et al.		
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APPELLANTS' BRIEF

This is an appeal from the final rejection of the claims in the above-identified application. A Notice of Appeal was mailed on 8/5/05.

I. REAL PARTY IN INTEREST

The real party in interest in this Appeal is Brooks Automation, Inc.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences regarding this application.

III. STATUS OF CLAIMS

Claims 1-38 and 40-42 are pending in the application.

Claims 1-38 and 40-42 have been finally rejected.

The claims on appeal are 1-38 and 40-42.

IV. STATUS OF AMENDMENTS

Since the final rejection of April 5, 2005, one amendment filed on August 5, 2005 has not been entered, and another amendment has been filed simultaneous herewith to remove items from appeal.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 recites that a substrate processing apparatus 10, 10' has a transport chamber 18, 18', 18A, 18B, 602-626 (page 10, lines 14-28, page 15, lines 5-10; page 18, lines 3-6, page 22, lines 17-29), at least one substrate holding module 20, 630-652 for holding a substrate, a transport vehicle 22, 122A, 122B,

406, and another module 20, 630-652 capable of holding the substrate (Figs. 2-7 and 7A). The transport chamber is capable of holding an isolated atmosphere isolated from atmosphere exterior to the transport chamber (pages 5, 11, lines 6-7; page 12, lines 16-17; page 19, lines 26-32; page 23, lines 10-20; see Figs. 2-7 and 7A). The at least one substrate holding module is communicably connected to the transport chamber for allowing transfer of the substrate between the holding module and transport chamber (page 12, lines 5-10; see Figs. 2-7 and 7A). The transport vehicle is movably mounted in the transport chamber (page 10, lines 31-33; page 11, lines 19-24) see also Figs. 2-7 and 7A). The vehicle 229, 1557, 1557', 1557'' (page 26, lines 24-25; page 27, lines 10-15; page 36, lines 20-22; page 38, lines 27-31; page 39, lines 23-29) has a base 156, 1558, 1558', 1558'' and a substrate transfer arm 22A, 158, 160, 1577, 1577', 1577'' that is movably jointed and movably mounted to the base (see Figs. 2-3, 12-12A and 23-25). The transport chamber defines a linear travel slot 18A, 18B for the vehicle 22, 406, 229, 1557, 1557', 1577''. The at least one substrate holding module 20, 630-521 is mounted on one side of the slot 18A, 18B. The arm 158, 160, 1577, 1577', 1577'' has articulation for moving the substrate to opposite sides of the slot (page 14, lines 20-25, page 15, lines 22-29; see Figs. 2-7 and 7A) allowing the other module to be selectably connected to the transport chamber on either side of the slot. The transport vehicle can effect transfer of the substrate between the transport chamber and both the substrate holding module and the other module.

Claim 10 calls for a substrate processing apparatus with a linear transport chamber 18, 18', 18A-18B, 602-626, at least one

processing module 20, 630-652 for processing a substrate, another module 20, 630-652 capable of holding the substrate therein, and a transport vehicle 22, 122A-122B, 406 (page 10, lines 14-28; page 15, lines 5-10; page 18, lines 3-6; page 22, lines 17-29, Figs. 2-7A). The linear transport chamber is capable of holding an isolated atmosphere therein. The isolated atmosphere in the chamber is isolated from atmosphere outside the chamber. The chamber has substrate transfer openings 180 (page 11, lines 6-7; page 12, lines 16-17; page 19, lines 26-32; page 23, lines 10-20; Figs. 2-7A). The at least one processing module is communicably connected to a side 18S of the chamber for allowing transfer, through the transfer opening of the substrate between the at least one processing module and transport chamber (page 12, lines 5-10; Figs. 2-7A). The other module is selectably connected to either the same side 18S of the chamber as the at least one processing module or to an opposite side 18S of the chamber (page 12, lines 10-15, Figs. 2-7A). The transport vehicle is movably mounted in the chamber to travel linearly in the transport chamber (page 10, lines 31-33; page 11, lines 19-24; Figs. 2-7A). The vehicle 229, 1557, 1557′, 1557′′, has a base 156, 1558, 1558′, 1558′′, and a jointed substrate transfer arm 22A, 158, 160, 1577, 1577′, 1577′′ movably mounted to the base. The transfer arm has a reach so that the vehicle is capable of transferring the substrate between the transport chamber and both the at least one processing module and the other module (page 26, lines 24-25; page 27, lines 10-15; page 36, lines 20-22; page 38, lines 27-31; Figs. 12-12A, 23-25). The chamber has at least one of a minimum chamber width, or a minimum substrate transport opening width for the given reach of the substrate transfer arm (page 40, lines 7-17; Figs. 2-7A).

Claim 20 recites a semiconductor workpiece processing apparatus having a first chamber 18P1-18P4, 602-626, a transport vehicle 22, 122A-122B, 406, and another chamber 18P1-18P4, 602-626 (page 18, lines 6-11, Fig. 7; page 22, lines 15-25, Fig. 7A). The first chamber is capable of being isolated from an outside atmosphere (page 18, lines 22-23; page 19, lines 1-6; Figs. 7-7A). The transport vehicle is located in the first chamber and movably supported from the first chamber for moving linearly relative to the first chamber (page 19, lines 7-10, Fig. 7; page 22, lines 5-21, Fig. 7A). The transport vehicle includes a base 156, 1558, 1558', 1558'' and an integral semiconductor workpiece transfer arm 22A, 158, 160, 1577, 1577', 1577''' movably mounted to the base and capable of multi-axis movement relative to the base (page 17, lines 16-18). The other chamber is communicably connected to the first chamber via a closable opening 18V, 654 of the first chamber. The opening is configured to enable the transfer vehicle to transit between the first chamber and the other chamber through the opening (page 20, lines 1-10, Fig. 7; page 23, lines 1-9, Fig. 7A).

Claim 40 recites a substrate processing apparatus having a transport chamber 18, 601-626, at least one substrate holding module 20, 630-652 for holding a substrate, a first transport vehicle 22, 122A, 122B, 406, and a second transport vehicle 22, 122A, 122B, 406 (page 10, lines 14-28; page 15, lines 5-10; page 18, lines 3-6; page 22, lines 17-29; Figs. 2-7A). The transport chamber is capable of having a controlled atmosphere therein (page 11, lines 6-7; page 12, lines 16-17; page 19, lines 26-32; page 23, lines 10-20; Figs. 2-7A). The at least one holding module is communicably connected to the transport chamber for

allowing transport of the substrate between the at least one holding module and transport chamber (page 12, lines 5-10; Figs. 2-7A). The first transport vehicle is movably mounted in the transport chamber (page 10, lines 31-33; Figs. 2-7A). The first vehicle has a first movable substrate transport arm 22A, 158, 160, 1577, 1577', 1577'' adapted for moving the substrate between the transport chamber and the at least one substrate holding module (page 17, lines 16-18; page 26, lines 24-25; page 27, lines 10-15; page 36, lines 20-22; page 38, lines 27-31; Figs. 2-7, 12-12A, 23-25). The second transport vehicle is movably mounted in the transport chamber. The second vehicle has a second movable substrate transport arm adapted for moving the substrate between the transport chamber and the at least one substrate holding module (page 15, lines 1-8; Fig. 7; page 22, lines 18-21; Fig. 7A). The transport chamber has a section defining a tube and has several linear travel paths 410, 408, 427, 704-705, between opposing walls of the tube for the first and second vehicles to travel in the transport chamber (page 25, lines 24-31; Figs. 11A-11B; page 32, lines 7-11, Figs. 13A-13B). The first vehicle 406 extends across the tube from proximate 1 of the opposing walls 414 to proximate another of the opposing walls 414 (Figs. 2-7A, 11A, 13A, 13C, 14). The first and second vehicles 406 are capable of moving past one another between the opposing walls of the tube when the first vehicle is using one of the travel paths and the second vehicle is using another of the travel paths (page 25, lines 26-30; page 26, lines 1-4; Figs. 7-7A, 11A-11B, 13A, 13C).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Are claims 1, 10, 14 and 16 unpatentable under 35 U.S.C. 112, second paragraph?

2. Are claims 1, 5-10, 13, 15-20, 22-38 and 40-42 unpatentable under 35 U.S.C. 102 as being anticipated by Mizokawa et al. (US 2002/0150448; hereinafter Mizokawa).

VII. ARGUMENT

A. 35 U.S.C. 112, Second Paragraph

1. Claim 1

Claim 1 is definite under 35 U.S.C. 112, second paragraph.

The test for definiteness under 35 U.S.C. § 112, second paragraph is whether a person skilled in the art would understand the claim language in light of the specification and drawings. Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 1 USPQ2d 1081 (Fed. Cir. 1986). Definiteness of claim language must be analyzed, not in a vacuum, but in light of the content of the application disclosure (MPEP 2173.02).

Claim 1 on lines 6-10 recites "at least one substrate holding module…, the at least one holding module being communicably connected to the transport chamber for allowing transfer of the substrate between the at least one holding module and transport

chamber…". On line 15, claim 1 recites "another module…". On lines 19-27, claim 1 recites "the at least one holding module being located on one side of the slot, and the arm having articulation for moving a substrate to opposite sides of the slot allowing the other module to be selectably connected to the transport chamber on either side of the slot, wherein the transport vehicle can effect transfer of the substrate between the transport chamber and both the at least one holding module and other module".

Recitation on line 6 of "at least one substrate holding module" provides antecedent basis for "the at least one holding module" on lines 7, 10, 19 and 26-27. Recitation of "another module" on line 15, provides antecedent basis for terms "the other module" on lines 22 and 27. The language of claim 1 does not create any confusion as to what the terms "the at least one holding module", on lines 19 and 26 and, "the other module", on lines 22 and 27, refer to respectively. One skilled in the art would clearly understand the meaning of the language in claim 1. Claim 1 meets the definiteness criteria under 35 U.S.C. 112, second paragraph and the Examiner's rejection should be reversed.

2. Claim 10

Claim 10 is definite under 35 U.S.C. 112, second paragraph.

Claim 10 recites that "the vehicle has a base and a jointed substrate transfer arm movably mounted to the base and having a reach so that the vehicle is capable of transferring the substrate between…" The language of claim 10 by itself is very

clear. The structure of the claim 10 language when read by itself, indicates that "the vehicle has a base and jointed substrate transfer arm" and the clause following "transfer arm" (i.e. "movably mounted to the base and having a reach…"] modifies the object "transfer arm"…. Thus, according to the language of claim 10, even if read alone, it is the "jointed substrate transfer arm [that is] movably mounted to the base and having a reach…". Moreover, on page 4, lines 13-15, the Specification states that "[t]he transfer arm has a reach so that". One skilled in the art, reading the claim language in light of the specification would clearly understand the language of claim 10. Claim 10 is definite under 35 U.S.C. 112, second paragraph and the rejection should be reversed.

3. Claim 14

Claim 14 is definite under 35 U.S.C. 112, second paragraph.

Claim 14 recites that the "transport chamber has an environment different that the other module". Claim 14 is dependent on claim 10. On line 13 claim 10 recites "another module". This provides antecedent basis for "the other module" recited in claim 14. The language of dependent claim 14, when read in combination with the base claim 10, is clear and unambiguous. Claim 14 meets the definiteness standard under 35 U.S.C. 112 second paragraph and the rejection should be withdrawn.

4. Claim 16

Claim 16 has been amended in the Amendment filed on the same date herewith to (delete term "first" from before "transport chamber" and) overcome the rejection.

B. 35 U.S.C. 102

1. Claim 1

Claim 1 calls for a transport chamber capable of holding an isolated atmosphere isolated from outside atmosphere exterior to the transport chamber. In Figs. 3-10, Mizokawa discloses a wafer processing system with processing apparatus A-Z and chamber 14. Inside the chamber 14, a mobile element 12 is provided and a guide rail 11 is provided for the mobile element. The wafer processing apparatus A-Z are connected by means of ducts 16A-16Z to the chamber 14 that allow wafers to be transferred between chamber 14 and respective processing apparatus A-Z. Mizokawa fails to make any mention whatsoever that chamber 14, in which mobile element 12 is located, has an isolated atmosphere or is in any way capable of holding an isolated atmosphere. Rather, in paragraph 32, lines 3-10, Mizokawa discloses that the inside of the chamber is established as a local clean room with higher cleanliness than the outside. For this, the chamber 14 is provided with fan filter units (FFU) 40 (see also Fig. 4) that send a large amount of (very) clean air into the chamber 14. Mizokawa fails to expressly disclose the source of the air for the FFU 40, but it appears to be outside air (i.e. air from outside chamber 14) that is filtered by the FFU 40 filters before being sent into the chamber. Sending outside air, even if filtered, into the transport chamber as in Mizokawa is very different than the transport

chamber being capable of holding an isolated atmosphere isolated from outside atmosphere exterior to the transport chamber.

Moreover, in order for the fan units to operate and send a large amount of air into the chamber 14, a substantially equivalent air mass already existing in the chamber, must be forced/exhausted out of the chamber (otherwise the fans 40 would be usable to send clean air into the chamber). To allow air/atmosphere inside the chamber 14 to vent/exhaust outside the chamber, it is inherent (i.e. necessary) that the Mizokawa chamber 14 have vents/openings through which the atmosphere in the chamber can vent to the outside. Hence, the atmosphere inside the chamber 14 in Mizokawa must communicate with the outside atmosphere. This is the opposite from what is called for in claim 1, that the transport chamber is capable of holding an isolated atmosphere isolated from outside atmosphere exterior the transport chamber.

The Examiner appears to argue (in Section 78, page 14 of the Final Action) that the bare disclosure of a chamber having higher cleanliness than those outside, or that is a local clean room, is the same as a chamber capable of holding an isolated atmosphere isolated from outside atmosphere exterior to the chamber. Even if we were to ignore the first law of thermodynamics (expressed roughly as fluid mass into the chamber is substantially equal to fluid mass out of the system, as Mizokawa says nothing, and fans 40 would not be capable, of significant pressurization of chamber 14) the Examiner's argument is wrong. A chamber, such as a chamber 14 in Mizokawa, having a higher cleanliness than the outside or that is a clean room does not necessarily mean a chamber capable of holding an

isolated atmosphere as called for in claim 1. By way of example, a clean room atmosphere, or a chamber with higher cleanliness than the outside, may be established merely by filtering particulates from the air introduced into the chamber. Indeed, this is precisely what is disclosed in paragraph 32, lines 2-6 of Mizokawa (and also shown in Fig. 4). Fan filter units (FFU) 40 are provided on top of the chamber 14. The FFU 40 sends a large amount of air of high cleanliness through a ventilation port formed in the chamber panel 15. The FFU 40 filters the large amount of outside air that is sent by the FFU from the outside into the chamber 14. Sending outside air into the chamber even if filtered to have higher cleanliness than outside, is precisely opposite to the meaning of the chamber holding or being capable of holding an isolated atmosphere. Webster's New Twentieth Century Dictionary, defines "isolated" on page 974 (a copy of which is attached hereto as Exhibit A) as "standing detached from". Although the Applicants' agree with the Examiner that the term atmosphere may mean climate, gases or pressure, a filter such as FFU 40 of chamber 14 in Mizokawa, is not capable of and does not cause the atmosphere (e.g. climate, pressure, gases) on one side of the filter to be isolated from (i.e. to be detached from) the atmosphere on the other side of the filter. Clearly, the atmosphere (climate, pressure, gases) on one side of the filter communicates through, is in contact with (not detached from) the atmosphere on the other side of the filter. The filter of FFU 40 in Mizokawa appears to be a particulate filter, and particulates are not atmosphere. The Examiner appears to be interpreting the claim terms in a manner that is repulsive to the ordinary meaning of the claim term. With respect to the disclosure of Mizokawa, the Examiner has failed to limit the way in which the reference has been applied

to that which is actually disclosed or that which necessarily arises from what is actually disclosed by Mizokawa. Mizokawa merely discloses that chamber 14 has a filter fan unit 40 that sends filtered air from outside into the chamber, which means that the atmosphere in the chamber communicates with the outside atmosphere, and clearly does not mean that the chamber is capable of holding an isolated atmosphere as called for in claim 1. Claims 1-9 are patentable over the cited art and the Examiner's rejection should be reversed.

2. Claim 9

Claim 9 is dependent on claim 1 and is allowable at least for the reasons noted before with regards to claim 1. Further, claim 9 recites that the linear motor (connected to the transport chamber) is connected to the arm for rotating the arm relative to the base and for articulating the arm. Mizokawa fails to anticipate the features of claim 9. In paragraph 33 Mizokawa discloses that chamber 14 has a linear motor, magnet 41 is mounted on the chamber structure and excitation coil 42 is mounted on the bottom of the mobile element 12 (see also Fig. 4). In paragraph 35, Mizokawa discloses that a wafer transport robot 13 is attached to the top of mobile 12. Mizokawa further discloses that robot 13 has arm 45 that can move up, down, left, right and rotate. Mizokawa fails to expressly disclose what drives the arm 45 to move up, down, left, right or rotate. However, it appears that linear motor 41 operates exclusively to move the mobile element 12 along the linear path. Linear motor 41 in Mizokawa does not appear capable in any way to rotate the arm 45 relative to the rest of the mobile element or to articulate the arm 45 in any way. In paragraph 80, of the Final

Action the Examiner states that Mizokawa discloses a linear transfer motor providing power to vehicle 41, vehicle base and transfer arm. This however is entirely irrelevant to the features called for in claim 9. Claim 9 does not call for merely a motor providing power to the transfer arm. Rather claim 9 recites that the linear motor is connected to the arm for rotating the arm relative to the base and for articulating the arm. This is not disclosed in Mizokawa. Claim 9 is patentable and the rejection should be reversed.

3. Claim 10

Claim 10, calls for a linear transport chamber capable of holding an isolated atmosphere therein, the isolated atmosphere being isolated from atmosphere outside the chamber. In contrast, the atmosphere inside the chamber 14 in Mizokawa must communicate with the outside atmosphere at least when the fans 40 providing the clean room condition within (by feeding outside air into) the chamber 14 are operating. Nowhere is there any disclosure in Mizokawa that the atmosphere inside the chamber is capable of being isolated from outside atmospheres, as called for in claim 10. Fan filter units 40 are not capable without more to isolate the atmosphere inside the Mizokawa chamber 14 from outside atmosphere exterior to the chamber. Further, claim 10 recites that the chamber has at least one of a minimum chamber width minimum transfer opening width for the given reach of the substrate transfer arm. Mizokawa says absolutely nothing about this. In paragraph 78 of the Final Action, the Examiner states that in paragraph 9, Mizokawa discloses a minimum chamber width or minimum transfer opening. The Applicant has closely read paragraph 9 in Mizokawa, as well as the rest of Mizokawa

and has failed to find where Mizokawa mentions anything about the chamber having a minimum chamber width or minimum transfer opening. On the contrary to what is asserted by the Examiner, the aforementioned paragraph in Mizokawa merely deals with the large production time and cost involved in prototype workpiece production, and says absolutely nothing regarding minimum chamber width or minimum transfer opening for the given reach of the substrate transfer arm. Claims 10-19 are patentable over the cited prior art and the rejection should be reversed.

4. Claim 17

Claim 17 is dependent on claim 10 and should be allowed for the aforementioned reasons. Claim 17 further recites that the linear motor is connected to the transport vehicle for effecting multi-axis movement of the transfer arm. By comparison, the linear motor 41 can move the mobile element 12, and hence robot 13 back and forth (along the linear guide rail) (i.e. uni-axial movement no multi-axis movement). It is not seen where Mizokawa discloses that linear motor 41 can move the transfer arm along or about any other axis than the one axis defined by rail 43. The Applicant agrees that the end effector 45a of the vehicle in Mizokawa is capable of moving along or about multiple axis. However, this is not what is called for in claim 17. Claim 17 calls for the linear motor connected to the vehicle effecting multi-axis movement of the transfer arm. Claim 17 is patentable over the cited art and the rejection should be reversed.

5. Claim 20

Claim 20 recites that the first chamber is capable of being isolated from outside atmosphere, that the transport vehicle has a base and an integral workpiece transfer arm movably mounted to the base and capable of multi-axis movement relative to the base, that another chamber is communicably connected to the first via a closable opening, and that the closable opening is configured to enable the transport vehicle to transit between the first and other chamber through the opening. Mizokawa fails to disclose a chamber (that movably supports the mobile element) that is capable of being isolated from outside atmosphere. The atmosphere inside the Mizokawa chamber 14 communicates with the outside atmosphere via fan filter unit 40 (that feed outside air into the chamber 14) and via exhaust vents of the chamber that (though not expressly disclosed are inherent/necessary from what is disclosed in Mizokawa) exhaust inside air to the outside. Also, in Mizokawa there is no other chamber communicably connected to the first via a closable opening, much less a closable opening sized to allow the mobile element 12 to transit (i.e. passage (which means voyage or travel; which means to go, move from one place to another) through or across) between the first and other chamber. The chamber 14 in Figs. 3-9 of Mizokawa is but a single slot without any closable openings much less closable openings sized to allow the mobile element to transit from one chamber to another chamber through the opening. In Fig. 10, chambers 14AF, 14GL, 14MS and 14TZ have openings to communicate with center chamber 101. The openings do not appear to be closable, and are not configured to enable the mobile elements 12AF, 12GL, 12MS and 12TZ to transit from one chamber to another. Also in Fig. 10, Mizokawa shows cassettes 4 that appear to be positioned to block the openings and thus transit of the mobile elements through the opening. Further, it appears

That chambers 14AF, 14GL, 14MS and 14TZ must have support structure for supporting the cassettes 4 at the chamber opening, and this structure located at the opening of the chambers would also not allow (i.e. disable) the mobile vehicle from transiting between the first and other chamber through the opening. Mizokawa fails to disclose a chamber that is communicably connected to the transport chamber via a closable opening, and that the closable opening is configured to enable the transport vehicle to transit between the first and other chamber through the opening. The Examiner's further argument that the opening of chamber 14AF, 14GL, 14MS and 14TZ enables the mobile vehicle 12 to transit through the opening via its robot arm 45 ignores the features called for in claim 1. Claim 1 recites that the transport vehicle has a base and integral transfer arm movably mounted to the base, and that the opening enables the vehicle itself (not just its arm) to transit (i.e. travel) between first and other chamber through the opening. The arm 45 or portion thereof (as it is not clear how much of arm 56 can transit through) which the opening in chamber 14AF, 14GL, 14MS 14TZ in Mizokawa allows to transit through the opening, is not a vehicle with a base and integral arm movably mounted to the base and capable of multi-axis movement relative to the base as called for in claim 20. Similarly, the portion of the arm 45 that enters processing apparatus A-O is not a vehicle with a base and transport arm movably mounted to the base and capable of multi-axis movement relative to the base. Claims 20-38 are patentable over the cited prior art and the rejection should be reversed.

6. Claim 22

Claim 22 is dependent on claim 20 and should be allowed for the aforementioned reasons. Further, claim 22 calls for the transport chamber being isolated from an environment in at least one processing module. This is not disclosed in Mizokawa, and it is not necessary in Mizokawa that any of the processing apparatus A-Z be isolated from the chamber or vice versa. As noted before chambers 14AF, 14GL, 14MS and 14TZ do not appear to be isolated from each other.

7. Claim 28

Claim 28 is dependent on claim 20 and should be allowed for the aforementioned reasons. Further, claim 28 recites that the apparatus further comprises a linear motor connected to the first chamber for driving the transport vehicle and for effecting multi-axis movement of the transfer arm. This is not disclosed in Mizokawa. Linear motor 41 in Mizokawa can only move arm, via mobile element 12, along one axis (i.e. uniaxial movement) and does not appear capable in any way to effect multi-axis movement of the arm 45. Claim 28 is patentable over the cited art and the rejection should be reversed.

8. Claim 30

Claim 30 is dependent on claim 20 and should be allowed for the aforementioned reasons. Further claim 30 recites that the forcer component (mounted to the chamber) is isolated from an environment in the chamber. This is not disclosed in Mizokawa. In Fig. 4 Mizokawa discloses that magnet 41 of the linear motor mounted to the chamber 14 is exposed to (and not isolated from)

the environment in the chamber. The rejection should be reversed.

9. Claim 31

Claim 31 is dependent on claim 30 and should be allowed for the aforementioned reasons. Further claim 31 recites that the forcer component is mounted on a vertical wall (of the chamber) and, when de-energized, the reaction component (mounted on the vehicle) reacts with the vertical wall of the chamber to stably support the transport vehicle in the chamber. This is not disclosed in Mizokawa. In Fig. 4 and paragraph 33, Mizokawa discloses a linear motor with a magnet 41, mounted to the chamber, and magnetizing coil 42 mounted to the mobile element 12. The mobile 12 is seated on and supported by rails 11, and the motor (magnet 41 and coil 42) enables movement along the rail. Mizokawa does not disclose that the motor (either when energized or de-energized) provides any support to the mobile. In paragraph 36, Mizokawa discloses that both guide rail 11, and magnet 41 forming the liner motor may be provided on a side portion of chamber 14. However, nothing is mentioned anywhere in Mizokawa that when de-energized, the magnetizing coil 42 (on the mobile) reacts with the vertical wall of the chamber 14 to stably support the transport vehicle in the chamber. Claim 31 is patentable and the rejection should be reversed.

10. Claim 40

Claim 40 calls for several linear travel paths between opposing walls of the transport chamber tube, the first vehicle extending across from proximate one opposing wall to proximate the other,

and that the first and second vehicles can move past one another between the opposing walls when the first vehicle is using one path and the second vehicle is using the other path. This is not disclosed in Mizokawa. In Fig. 9, the chamber 14 has two rails 11. However, neither mobile element 12AM, 12NZ is wide enough to extend across the chamber from proximate one wall to proximate the opposite wall as called for in claim 40. Claims 40-42 are patentable over the cited art and the rejection should be reversed.

Enclosed is a check in the amount of $500.00 for payment of the Appeal Brief. The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

12/7/05

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VIII. CLAIM APPENDIX

The texts of the claims involved in the appeal are:

1. A substrate processing apparatus comprising:

a transport chamber capable of holding an isolated atmosphere isolated from atmosphere exterior to the transport chamber;

at least one substrate holding module for holding a substrate, the at least one holding module being communicably connected to the transport chamber for allowing transfer of the substrate between the at least one holding module and transport chamber;

a transport vehicle movably mounted in the transport chamber, the vehicle having a base and a substrate transfer arm that is movably jointed and movably mounted to the base; and

another module capable of holding the substrate and communicably connected to the transport chamber for transferring the substrate therebetween,

wherein the transport chamber defines a linear travel slot for the vehicle, the at least one holding module being located on one side of the slot, and the arm having articulation for moving a substrate to opposite sides of the slot allowing the other module to be selectably connected to the transport chamber on either side of the slot, wherein the transport vehicle can effect transfer of the substrate between the

transport chamber and both the at least one holding module and the other module.

2. The apparatus according to Claim 1, wherein the at least one holding module is a substrate processing chamber module, and the other module is a load lock chamber module.

3. The apparatus according to Claim 1, wherein the at least one holding module is a load lock chamber module, and the other module is another load lock chamber module.

4. The apparatus according to Claim 1, wherein the at least one holding module is a substrate processing chamber module, and the other module is another substrate processing chamber module.

5. The apparatus according to Claim 1, wherein the other module can be connected to an end of the transport chamber.

6. The apparatus according to Claim 1, wherein the transport chamber extends between the at least one holding module and the other module, when the other module is connected on an opposite side of the slot from the at least one holding module.

7. The apparatus according to Claim 1, wherein the arm is rotatable relative to the base of the transport vehicle.

8. The apparatus according to Claim 1, further comprising a linear motor connected to the transport chamber for driving the transport vehicle.

9. The apparatus according to Claim 1, wherein the linear motor is connected to the arm for rotating the arm relative to the base and articulating the arm in opposite directions.

10. A substrate processing apparatus comprising:

a linear transport chamber capable of holding an isolated atmosphere therein, the isolated atmosphere in the chamber being isolated from atmosphere outside the chamber, and having substrate transfer openings;

at least one processing module for processing a substrate, the at least one processing module being communicably connected to a side of the chamber for allowing transfer, through the transfer openings, of the substrate between the at least one processing module and transport chamber;

another module capable of holding the substrate therein and being selectably connected to either the same side of the chamber as the at least one processing module or to an opposite side of the chamber; and

a transport vehicle movably mounted in the chamber to travel linearly in the transport chamber, the vehicle having a base and a jointed substrate transfer arm movably mounted to the base and having a reach so that the vehicle is capable of transferring the substrate between the transfer chamber and both the at least one processing module and the other module,

wherein the chamber has at least one of a minimum chamber width, or a minimum substrate transfer opening width for the given reach of the substrate transfer arm.

11. The apparatus according to Claim 10, wherein at least one of the substrate transfer openings has a door that closes and opens the at least one opening.

12. The apparatus according to Claim 11, wherein when the at least one opening is closed, the transport chamber is isolated from an environment in the at least one processing module.

13. The apparatus according to Claim 10, wherein the transport chamber has a generally tubular shape defining a substantially linear travel path for the transport vehicle.

14. The apparatus according to Claim 11, wherein when the at least one opening is closed, the transport chamber has an environment different than the other module.

15. The apparatus according to Claim 10, wherein the transport chamber has a general tube shape with elongated lateral sides, the other module being connected to one of the lateral sides.

16. The apparatus according to Claim 10, wherein the base of the transport vehicle interacts with at least one wall of the transport chamber to movably support the transport vehicle from the first chamber.

17. The apparatus according to Claim 10, further comprising a linear motor connected to the transport chamber for driving the transport vehicle and for effecting multi-axis movement of the transfer arm.

18. The apparatus according to Claim 17, wherein the linear motor is a solid state motor.

19. The apparatus according to Claim 17, wherein the linear motor is mounted along at least a portion of the transport chamber and is mounted along at least another portion of the other module.

20. A semiconductor workpiece processing apparatus comprising:

a first chamber capable of being isolated from an outside atmosphere;

a transport vehicle in the first chamber and movably supported from the first chamber for moving linearly relative to the first chamber, the transport vehicle including a base and an integral semiconductor workpiece transfer arm movably mounted to the base and capable of multi-axis movement relative to the base; and

another chamber communicably connected to the first chamber via a closable opening of the first chamber, the opening being configured to enable the transport vehicle to transit between the first chamber and the other chamber through the opening.

21. The apparatus according to Claim 20, wherein the opening has a door that closes and opens the opening.

22. The apparatus according to Claim 20, wherein when the opening is closed, the first chamber is isolated from an environment in the other chamber.

23. The apparatus according to Claim 20, wherein the first chamber has a generally tubular shape defining a substantially linear travel path for the transport vehicle.

24. The apparatus according to Claim 20, wherein the first chamber and the other chamber define a substantially linear travel path for the transport vehicle.

25. The apparatus according to Claim 20, wherein when the opening is closed, the first chamber has an environment different than the other chamber.

26. The apparatus according to Claim 20, wherein the first chamber has a general tube shape with elongated lateral sides, the other chamber being connected to one of the lateral sides.

27. The apparatus according to Claim 20, wherein the base of the transport vehicle interacts with at least one wall of the first chamber to movably support the transport vehicle from the first chamber.

28. The apparatus according to Claim 20, further comprising a linear motor connected to the first chamber for driving the transport vehicle and for effecting multi-axis movement of the transfer arm, and wherein the linear motor is a solid state motor.

29. The apparatus according to Claim 28, wherein the linear motor extends along at least a portion of the first chamber and along at least another portion of the other chamber.

30. The apparatus according to Claim 28, wherein the linear motor comprises a forcer component and a reaction component, the forcer component being mounted to the first chamber so that the forcer component is isolated from an environment in the first chamber.

31. The apparatus according to Claim 30, wherein the reaction component is mounted on the transport vehicle, and the forcer component is mounted on a vertical wall of the first chamber, and wherein when the reaction component is de-energized, the reaction component reacts with the vertical wall of the first chamber to stably support the transport vehicle in the first chamber.

32. The apparatus according to Claim 20, wherein the transfer arm has an end effector for holding a semiconductor workpiece thereon, and the transfer arm is movably jointed so that the arm is capable of moving the semiconductor workpiece in opposite directions from opposite sides of the first chamber.

33. The apparatus according to Claim 32, wherein the transfer arm is capable of rotation relative to the base about a first axis, and is capable of moving the end effector along a radial axis relative to the base.

34. The apparatus according to Claim 20, further comprising yet another chamber communicably connected to the first chamber to allow transfer of a semiconductor workpiece between the yet another chamber and the first chamber, the yet another chamber being at least one of an front end module, a semiconductor workpiece holding module, or a semiconductor workpiece processing module.

35. The apparatus according to Claim 20, wherein the other chamber is at least one of a semiconductor workpiece holding chamber or a semiconductor workpiece processing chamber, the semiconductor workpiece processing chamber being at least one of lithography module, a metal deposition module, an etching module, or a heating or cooling module.

36. The apparatus according to Claim 20, wherein the other chamber is a stocker for stocking semiconductor workpiece transport containers therein.

37. The apparatus according to Claim 20, wherein the other chamber is a load lock chamber.

38. The apparatus according to Claim 20, wherein the other chamber is a front end module providing an interface between the semiconductor workpiece transport containers and the first chamber.

40. A substrate processing apparatus comprising:

a transport chamber capable of having a controlled atmosphere therein;

at least one substrate holding module for holding a substrate, the at least one holding module being communicably connected to the transport chamber for allowing transfer of the substrate between the at least one holding module and transport chamber;

a first transport vehicle movably mounted in the transport chamber, the first vehicle having a first movable substrate transfer arm adapted for moving the substrate between the

transport chamber and the at least one substrate holding module; and

a second transport vehicle movably mounted in the transport chamber, the second vehicle having a second movable substrate transfer arm adapted for moving the substrate between the transport chamber and the at least one substrate holding module;

wherein the transport chamber has a section defining a tube and has several linear travel paths between opposing walls of the tube for the first and second vehicles to travel in the transport chamber, and wherein the first vehicle extends across the tube from proximate one of the opposing walls to proximate another of the opposing walls and the first and second vehicles are capable of moving past one another between the opposing walls of the tube when the first vehicle is using one of the travel paths and the second vehicle is using another of the travel paths.

41. The apparatus according to Claim 40, wherein the travel paths are generally aligned with each other.

42. The apparatus according to Claim 40, wherein the travel paths extend longitudinally in the transport chamber.

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EXHIBIT A

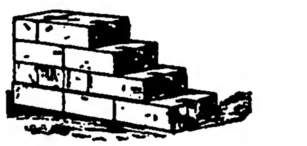
officiating priest through the church to the chancel.

ī″sō·dī·mor′phiç, *a.* see *isodimorphous.*

ī″sō·dī·mor′phişm, *n.* [*iso-*, and Gr. *dimorphos*, two-formed; *dis*, twice, and *morphē*, form.] a similarity of crystalline form between the two forms of two dimorphous substances.

ī″sō·dī·mor′phous, *a.* of or possessing the characteristics of isodimorphism.

ī·sod′ō·mon, ī·sod′ō·mum, *n.* [Gr. *isodomon*, properly neut. of *isodomos*, built alike; *isos*, equal, and *demein*, to build.] in Grecian architecture, a construction in which the blocks are of equal thickness and length.



ISODOMON

ī′sō·dont, *a.* [*is-*, and Gr. *odous*, *odontos*, a tooth.] in zoology, having all the teeth alike or of the same class.

ī·sō·dul′cīte, *n.* [*iso-* and *dulcite.*] a crystalline compound resembling sugar.

ī″sō·dy·nam′iç, *a.* [*iso-*, and Gr. *dynamis*, power, force.]
1. of or having equal force.
2. connecting or showing points on the earth's surface having equal magnetic intensity; as, *isodynamic* lines on a map.

ī″sō·dy·nam′iç, *n.* an isodynamic line.

ī″sō·dy·nam′i·çăl, *a.* isodynamic.

ī·sō·dy′nȧ·mous, *a.* [Gr. *isodynamos*; *isos*, equal, and *dynamis*, power.] having equal force; of equal size.

ī″sō·ē·leç′triç, *a.* having equal electric potential.

ī·sō·ē·tā′cē·ae, *n.pl.* [L. *isoetes*, a houseleek, from Gr. *isoetēs*, an evergreen plant, lit. equal in years; *isos*, equal, and *etos*, a year, and *-aceæ*]. a family of vascular cryptogamous aquatic plants, comprising a single genus, *Isoetes*, the quillwort.

ī·sō·ē·tā′ceous, *a.* belonging or pertaining to the family *Isoetaceæ*.

ī·sō·ē′tē·ae, *n.pl.* same as *Isoetaceæ*.

ī·sō′ē·tēş, *n.* the only known genus of *Isoetaceæ*.

ī″sō·gȧ·mēte′, *n.* a gamete not differentiated sexually or otherwise from another that it unites with: opposed to *heterogamete*.

ī·sog′ȧ·mous, *a.* characterized by isogamy.

ī·sog′ȧ·my, *n.* [*iso-*, and Gr. *gamos*, marriage.] in botany, reproduction by the union of two isogametes.

ī·sog′e·nous, *a.* [*iso-* and *-genous.*] in biology, of the same origin.

ī·sog′e·ny, *n.* [*iso-* and *-geny.*] in biology, the condition of being isogenous; identity of origin.

ī·sō·ġē′ō·thẽrm, *n.* [*iso-*, and Gr. *gē*, earth, and *thermē*, heat.] in physical geography, an imaginary line or surface under the earth's surface passing through points having the same mean temperature.

ī·sō·ġē·ō·thẽr′măl, *a.* relating to or having the characteristics of an isogeotherm.

ī·sō·ġē·ō·thẽr′miç, *a.* isogeothermal.

ī′sō·gloss, *n.* [*iso-*, and Gr. *glossa*, tongue, speech.] in linguistics, an imaginary line of demarcation between regions differing in some feature of pronunciation, syntax, etc.

ī·sog′nȧ·thous, *a.* [*iso-*, and Gr. *gnathos*, jaw.] in odontology, having the teeth in both the upper and the lower jaw alike.

ī′sō·gon, *n.* [*iso-* and *-gon.*] a polygon with all angles equal.

ī·sog′ō·năl, *a.* equiangular.

ī·sō·gon′iç, *a.* [Gr. *isogōnios*, having equal angles; *isos*, equal, and *gōnia*, an angle.]
1. of or having equal angles.
2. connecting or showing points on the earth's surface having the same magnetic declination; as, *isogonic* lines on a map.

ī·sō·gon′iç, *n.* an isogonic line.

ī·sō·gon′iç, *a.* in biology, pertaining to isogonism.

ī·sō·gō′ni·ō·stat, *n.* [Gr. *isogōnios*, having equal angles, and *statos*, verbal adj. of *histanai*, to stand.] a device for regulating the motion of prisms, as in a spectroscope.

ī·sog′ō·nişm, *n.* [*iso-*, and Gr. *gonos*, an offspring.] in biology, the production of like reproductive parts from dissimilar stocks, as in certain hydroids.

ī′sō·grȧph, *n.* a drawing instrument which serves as a protractor and square: it consists of two short, straight edges of metal, joined at the top by a circular plate marked with angular degrees.

ī·sō·graph′iç, *a.* pertaining to isography.

ī·sog′rȧ·phy, *n.* [*iso-*, and Gr. *graphein*, to write.] the imitation of another's handwriting. [Rare.]

ī·sog′y·nous, *a.* [*iso-*, and Gr. *gynē*, a female.] in botany, having the pistils or the parts of a compound ovary agreeing in number with the sepals.

ī·sō·hal′sīne, *n.* [*iso-*, and Gr. *hals*, salt, and *-ine.*] in physical geography, an imaginary line passing through those points in the ocean at which the salinity of the water is equal.

ī·sō·hy′e·tăl, ī·sō·hy′e·tōse, *a.* [*iso-*, and Gr. *hyetos*, rain.] designating or of a line on a map connecting those places on the surface of the globe where the quantity of rain which falls annually is the same.

ī·sō·hy′e·tăl, ī·sō·hy′e·tōse, *n.* an isohyetal line.

ī′sō·lȧ·ble (*or* is′ō-), *a.* [*isol*ate and *-able.*] that can be isolated; specifically, in chemistry, capable of being obtained pure, or uncombined with any other substance.

ī′sō·lāte (*or* is′ō-), *v.t.*; isolated, *pt.*, *pp.*; isolating, *ppr.* [It. *isolato*, pp. of *isolare*, to isolate, from *isola*, L. *insula*, an island.]
1. to set apart from others; to place alone.
2. in bacteriology, to grow a pure culture of (a specific bacterium).
3. in chemistry, to separate (an element or compound) in pure form from substances with which it is combined or mixed.
4. in medicine, to place (a patient with a contagious disease) apart from others to prevent the spread of infection.

ī′sō·lā·ted, *a.* 1. standing detached from others of a like kind; placed by itself.
2. in chemistry, pure; not combined.

ī·sō·lā′tion, *n.* an isolating or being isolated.

ī·sō·lā′tion·işm, *n.* the policy advocated by isolationists.

ī·sō·lā′tion·ist, *n.* a person who believes in or advocates isolation; a person who wants his country to take no part in international alliances, leagues, etc.

ī·sō·lā′tion·ist, *a.* of isolationists or isolationism.

ī′sō·lā·tŏr, *n.* a person or thing that isolates.

ī·sōlde′, *n.* [G.; OFr. *Isolt*, *Iseul*; OHG. *Isold*; prob. from *is*, ice and *waltan*, to rule.] in medieval legend, (a) the Irish princess married to King Mark of Cornwall and beloved by Tristram; (b) the daughter of the king of Brittany, married to Tristram. Also *Iseult*.

ī·sol′ō·gous, *a.* [*iso-*, and Gr. *logos*, proportion, and *-ous.*]
1. designating or of any of two or more chemical compounds of similar structure but consisting of different atoms of the same valence and usually of the same periodic group.
2. designating or of a series formed by such compounds.

ī′sō·logue (-log), *n.* an isologous compound.

ī″sō·mag·net′iç, *a.* 1. of equality of magnetic force.
2. connecting or showing points on the earth's surface having the same magnetic intensity; as, *isomagnetic* lines on a map.

ī″sō·mag·net′iç, *n.* an isomagnetic line.

ī·sō·mas′ti·gāte, *a.* [*iso-*, and Gr. *mastix* (*-igos*), a whip.] in biology, having the flagella alike, especially as to size and form.

ī′sō·mẽr, *n.* [Gr. *isomerēs*, having equal parts; *isos*, equal, and *meros*, part.] any of two or more chemical compounds having the same constituent elements in the same proportion by weight but differing in physical or chemical properties because of differences in the structure of their molecules.

ī′sō·mēre, *n.* [Gr. *isomerēs*, having equal parts.] in zoology, some part, as a limb or the segment of a limb, having a homologous part in some other animal.

ī·sō·mer′iç, ī·sō·mer′iç·ăl, *a.* [*isomer*ous and *-ic.*]
1. in chemistry, having the same percentage composition, but showing different properties.
2. in zoology, relating to an isomere.

ī·sō·mer′iç·ăl·ly, *adv.* in an isomeric manner.

ī·som′ẽr·īde, *n.* same as *isomer*.

ī·som′ẽr·ism, *n.* [*isomer*ous and *-ism.*] in chemistry, the state or relation of isomers.

ī·sō·mer·ō·mor′phişm, *n.* [*iso-*, and Gr. *meros*, part, and *morphē*, form.] in crystallography, isomorphism between isomeric substances.

ī·som′ẽr·ous, *a.* [G...
parts; *isos*, equ...
1. having th...
ings, etc.
2. in botany...
parts in each who...
3. isomeric...

ī·sō·met′riç, ī·sō... *tros*, of equal me... measure.]
1. of, indicatio... measure.
2. designating a... three equal axes... other.
3. designating...

ī·sō·met′riç, *n.* ... exercise in which... briefly tensed in... of muscles or in...
2. in thermody... changes of press... stant volume.

ī·sō·met′riç pro... ing figures and... sions are shown... their actual me...

ī·sō·met′rō·grȧph... measure, and *gra*... ance for drawing...

ī″sō·mē·trō′pi·ȧ... Gr. *metron*, mea... tion of being equ... two eyes.

ī·som′e·try, *n.* [...
1. equality of...
2. in geography... sea level.

ī′sō·morph, *n.* [...] substance or or... other or others.

ī·sō·mor′phiç, *a.* ... isomorphous.
2. having the sa... or form.

ī·sō·mor′phişm, ... similarity of cryst... substances of sim... proportions, as ar... acid, each conta... gen; (b) someti... unlike composit... the metal arsen... rhombohedral c... 85°41′, of the la...
2. in biology, ... or structure of ... or races.

ī·sō·mor′phous, ... form.] having iso...

ī″sō·my·ā′ri·ăn, ... muscle, and *arian*... two adductor mu... size and form.

-ī·sŏn, [OFr. ... *-atio*, *-ationis*.] a ... derived from O... *-ation*, as in com...

ī·sō·nan′drȧ, *n.* [... man, male.] a gen... cluding a species ... obtained.

ī″sō·nē·phel′iç, ... cloud.] in physic... line on a map con... same percentage o... period.

ī·sō·niç′ō·tine, *n.* ... meric with nicoti...

ī·sō·niç·ō·tin′iç, ...

ī·sō·nom′iç, *a.* equ...

ī·son′ō·my, *n.* [Gr. ... *isos*, equal, and ... law.] equality of ...

ī·sop′ȧ·thy, *n.* [*iso*... disease.] (a) the ... by the products o... smallpox by ho... matter; (b) the ... is cured by eating ... animal.

ī·sō·per·i·met′riç, ... around, and *metro*... having equal bou... figures.

ī″sō·per·im′e·try, ... dealing with isop...

ī·sō·pet′ȧ·lous, *a.* ... petal.] in botan...

ī″sō·pī·es′tiç, *a.* [... and *-ic.*] indicati...

fāte, fär, fȧst, fąll, finăl, cãre, at; mēte, prey, hẽr, met; pīne, marine, bîrd, pin; nōte, mōve, f...